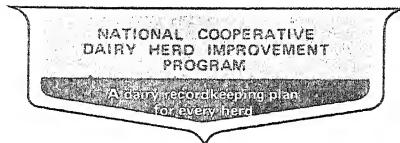


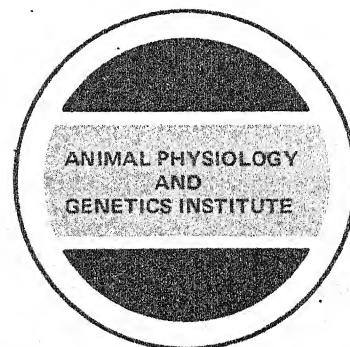
Dairy Herd Improvement Letter

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Dairy Herd Improvement Letter
January-February-March 1974

ENCOURAGING ENROLLMENT IN THE
NATIONAL COOPERATIVE DAIRY HERD IMPROVEMENT PROGRAM ^{1/}

By Gerald J. King and Frank D. Murrill ^{1/}

Between 1940 and 1960, enrollment in the National Cooperative Dairy Herd Improvement Program increased from 2.91 percent of U.S. cows to 13.63 percent--0.54 percent per year. In the 13 years since 1960, enrollment has increased to 28.65 percent of U.S. cows, an average increase of 1.16 percent per year. This is double the rate of the past 20 years, but is not exceptional when compared with the percentage of tested cows in other countries.

Those involved in operation of the dairy recordkeeping plans have not engaged in publicity campaigns. They have preferred to emphasize education and research. This is proper, yet only 28.65 percent of our dairymen are on test. The National Cooperative Dairy Herd Improvement Program is publicized as an important tool for herd management, but 71.35 percent of our cows are not enrolled in any testing program. Why not? Dairymen have given many reasons for not enrolling. Some are:

"I can't afford it."

"I know what my cows produce."

"I don't need to spend the money on testing when I know which cows to cull."

"It's too expensive."

"There's no association close enough."

"I don't want anyone looking at my records!"

"I'm not selling purebred cattle, so I don't need to test."

"Nobody's ever talked to me about testing."

"I'm not going to cull from my small herd, so I'll wait until my herd gets bigger."

^{1/}King is a dairy husbandman in the Animal Improvement Programs Laboratory, Animal Physiology and Genetics Institute, Northeastern Region, ARS. Murrill is National DHI Coordinator. With the technical assistance of Anna H. Kienast.

Simply having records will not help the dairymen in his management decisions. The records must be used to decide:

- Whether a presently used ration is too expensive, or so poor in quality as to be uneconomical.
- Whether efficient use is being made of available forage.
- Whether any cows are being fed more than they can use economically.
- Whether any cows are being fed too little.
- Whether cows are being bred to maintain a desired calving interval.
- Whether bulls are being used in a way that will cause inbreeding to increase to an unacceptable level.
- Which cows should be culled.

When selling his heifers, one dairymen belatedly realized that he could have recovered three to five times the dairy recordkeeping cost in additional selling price, if he had had DHIA records on the heifers' dams.

Several approaches to encouraging enrollment are:

- To make it immediately worthwhile for a dairyman to be in a testing program. A dairyman joining at his own request might receive the first month's testing fee free.
- If a dairyman enrolls a herd not his own, he might receive credit for an amount equal to a month's testing fee for the herd enrolled.
- If a DHIA supervisor enrolls a new herd, he might receive a bonus equal to a month's fee for the herd.
- A supervisor might receive a bonus for having the greatest number of cows enrolled, the greatest number of herds enrolled, and the greatest percent increase in cows on test or in herds on test or both.
- The local DHIA with the greatest increase in cows on test might receive a bonus from the State DHIA.
- The local Extension Agent with the greatest percent increase in cows on test in his county might receive a bonus from the State DHIA.

Other ideas are being used. The important thing is for more dairymen to realize the importance of good production (and perhaps feed and cost) records in the management of their herds.

IDENTIFICATION OF COWS ON OFFICIAL TEST

By Gerald J. King

Rule 4 of the Official DHI Rules requires positive identification of each dairy cow in DHI herds. The required identification is limited to the registration number or eartag of the cow herself. Nothing is said about the identification of the sire and dam of the cow. I have suggested to the Coordinating Group for the National Cooperative Dairy Herd Improvement Program that these items as well as the birthdate and breed of the cow be added to the required identification for Official DHI cows.

Why identify cows in your herd? Several reasons are:

For feeding according to production, for the completion of an individual breeding cycle, for following through on a long-range breeding program, opportunity to merchandise at higher prices, or for culling.

Nothing but the cow's number is needed for feeding for production or culling on production or for records on the completion of an individual breeding cycle. For the development of a herd, however, full identification is essential to avoid the addition of undesirable traits to your herd, and to avoid inbreeding. Full identification is also needed to cull on the transmitting ability of the individual's sire or dam or both or to cull on pedigree.

Milk production is controlled by a cow's inherited ability to produce and her environment--feeding and treatment. Thus a cow that doesn't have the inherited ability to produce large amounts of milk cannot produce as much as a cow that does, regardless of how well she is fed and treated. And a cow with inheritance for high milk production will not produce well if she is not treated well and fed to her potential. Full identification of a cow is essential to ensure the best possible mating of any given cow and a maximum increase in the genetic base in succeeding generations.

Some believe that full identification of dairy animals serves only to support the artificial insemination (AI) industry. The AI industry was originally conceived to get cows bred for dairymen more easily and more safely and to make genetically superior bulls available to dairymen at a reasonable cost. The best interest of dairymen is served by supporting the AI industry, so that AI may continue to provide the best quality bulls for dairymen. Only with full identification of animals will any bull be selected for an AI stud. Some of the AI studs have their own young sire-sampling programs or cooperator herds or both, but they still need

Identification of dairy animals outside their cooperator herds. Thus, any effort to identify dairy animals benefits dairymen the most. Even though most AI studs have young sire-sampling programs, some bulls are purchased on the basis of production of daughters in one or a very few herds. Such a bull will never be selected without full identification of his daughters. And the difference in price between cutter-canner and proven breeding bull makes time spent in recording identification very valuable. The same is true of selecting cows for planned matings. If a cow is not fully identified, she will not be selected.

To write down 9 digits, representing a registration number or eartag, takes about 3 seconds. By allowing for searching across a barn sheet, recording the 5 numbers for full identification of a young dairy animal might take 30 seconds. Surely 30 seconds per cow per year is not too much time to spend to insure some or all the advantages of full identification of the dairy herd.

Another problem with lack of identification is that when either the sire or a sire's daughters are not identified, that sire can't be summarized.

In addition to the immediate value of full identification, herd owners on the Official DHI and DHIR testing plans agree to make their records available to the State Universities and Cooperative Extension Services and USDA for research and education.

No research on transmitting ability can be done with unidentified data. For such work, sires must be identified, with at least a minimum number of daughters' records to obtain meaningful results. It is the collection of data for the Nation, a State, or for any region that makes possible the ranking of sires and cows for genetic merit.

The USDA-LHIA Sire Summary List requires that any bull summarized have a minimum of 10 daughters with lactation records and herdmate records reported. Much less data makes a summary less meaningful as an indicator of genetic worth. In the 12 years since the daughter-herdmate comparison was adopted by USDA, acceptance of the system has been almost complete, and research workers continue to improve the method and research for better ones. Since the system regularly accepts data on bulls currently in use, full identification of dairy animals must continue. The continued evaluation of dairy sires is advantageous for all dairymen seriously interested in genetically improving their herds.

STATE AND NATIONAL LACTATION AVERAGES BY BREED
FOR OFFICIAL DHI AND DHIR COWS THAT CALVED IN 1971 2/

Lactation averages for milk and fat yields (lb) and fat percentages by breed for cows that calved in 1971 are included for each of the 50 States and the United States. Lactation averages have been standardized to a 305-day

2/ Prepared by Gerald J. King with technical assistance of Anna H. Kienast, Victor H. Lytton, and Lewis G. Waite.

lactation, twice-a-day milking, and mature equivalent (305-day, 2X, ME) basis.

Records included in averages.--Only Official DHI and DHIR records for which USDA editing was described in the December 1970 Dairy Herd Improvement Letter, ARS 44-222, were included in the averages. Cows were not included if the breed of sire and dam was different. Records of cows with unknown sires or dams were included in averages for the cow's breed. For instance, a cow reported as a Brown Swiss (breed 5) would not have been included if her dam were coded as another breed. However, if the cow's sire or dam has been reported as unknown (breed 0), the cow would have been included in the averages for Brown Swiss.

How records were standardized to a 305-day, 2X, ME basis.--Lactations where cows were denied an opportunity to give milk for 305 days were projected to 305 days with factors that account for differences in lactation curves because of breed, age, and traits (milk and fat). These factors are currently used by USDA and were published in the August 1965 Dairy Herd Improvement Letter, ARS 44-164.

All lactations were standardized to a mature equivalent basis by the age adjustment factors currently used by USDA. The factors account for variation associated with age to calving within breed, season, region, and traits (milk and fat). The factors used were published in the February 1967 Dairy Herd Improvement Letter, ARS 44-188.

Lactations made by milking three or four times a day were reduced to a 2X basis with factors published in ARS 52-1 and in the January-February 1972 Dairy Herd Improvement Letter, ARS 44-239.

Fat percentages were computed from the 305-day, 2X, ME milk and fat yields, which put them on the same basis.

The number of Official DHI and DHIR lactation records available for each breed for the United States and their respective standardized averages for milk and fat yields for cows that calved in 1971 are as follows:

Breed	Records	Milk	Fat	Fat
		No.	Lb	%
Ayrshire	22,427	11,683	3.86	451
Guernsey	97,844	10,316	4.58	473
Holstein	1,592,817	14,737	3.60	530
Jersey	102,326	9,441	4.94	467
Brown Swiss	26,490	12,791	3.99	510
Milking Shorthorn	3,017	10,517	3.67	386

Tables of State averages and numbers of records by breed and year.--The number of Official DHI and DHIR lactation records available in each State and the respective 305-day, 2X, ME averages for lactation milk and fat yields and fat percentages are presented in two tables. Table 1 includes averages for Ayrshires, Guernseys, and Holsteins. Table 2 includes averages for Jerseys, Brown Swiss, and Milking Shorthorns.

TABLE 1.--AVERAGE YIELDS BY STATE FOR CALVING YEAR 1971 FOR OFFICIAL COWS CODED AS AYRSHIRE, GUERNSEY AND HOLSTEIN ON A 305-DAY, 2X, ME BASIS

STATE	RECORDS	AYRSHIRE				GUERNSEY				HOLSTEIN			
		NO.	MILK LB	FAT %	FAT LB	RECORDS	MILK LB	FAT %	FAT LB	RECORDS	MILK LB	FAT %	FAT LB
ALABAMA-----	131	10,187	3.69	376		1,049	8,796	4.49	395	21,316	13,098	3.64	476
ALASKA-----	(1/)	(1/)	(1/)	(1/)		(1/)	(1/)	(1/)	(1/)	66	14,898	3.61	538
ARIZONA-----	30	12,405	3.85	474		1,835	11,804	4.26	503	13,926	15,935	3.38	539
ARKANSAS-----	4	11,720	3.80	445		329	10,102	4.25	429	5,451	13,710	3.35	459
CALIFORNIA-----	446	14,690	3.92	576		6,441	11,326	4.54	514	137,152	17,065	3.57	610
COLORADO-----	83	10,889	3.96	432		413	10,758	4.61	496	13,273	15,153	3.52	534
CONNECTICUT-----	534	12,465	3.94	491		1,721	10,174	4.56	464	19,052	15,532	3.62	563
DELAWARE-----	176	11,346	4.05	459		176	8,831	4.59	407	3,588	14,516	3.65	530
FLORIDA-----	259	11,209	3.60	404		2,637	9,343	4.25	397	8,641	13,208	3.32	439
GEORGIA-----	194	10,799	3.73	403		1,412	10,358	4.50	467	25,470	13,511	3.51	474
HAWAII-----	1	12,900	3.54	457		3	7,627	3.82	291	2,708	13,400	3.13	420
IDAHO-----	103	10,807	3.72	402		1,051	9,888	4.52	447	19,851	14,423	3.56	514
ILLINOIS-----	562	11,267	3.83	432		2,878	9,945	4.60	458	41,986	14,498	3.67	533
INDIANA-----	222	11,511	3.86	444		4,416	10,708	4.70	503	30,633	14,305	3.63	520
IOWA-----	1,456	11,523	3.84	442		3,092	9,791	4.67	457	49,658	13,600	3.63	494
KANSAS-----	967	11,670	3.87	451		1,273	9,943	4.71	468	37,972	14,295	3.57	510
KENTUCKY-----	149	11,528	3.63	418		1,010	10,053	4.44	446	19,710	13,393	3.52	471
LOUISIANA-----	166	9,606	3.52	338		1,487	9,768	4.32	422	6,620	13,076	3.30	431
MAINE-----	299	11,891	3.95	470		650	10,284	4.54	467	16,732	14,854	3.66	544
MARYLAND-----	492	10,315	3.97	410		2,646	9,624	4.75	457	33,660	14,227	3.70	526
MASSACHUSETTS-----	831	11,977	3.88	465		1,089	10,635	4.63	493	16,374	14,918	3.67	547
MICHIGAN-----	105	11,523	3.89	449		2,601	10,950	4.75	521	67,962	14,618	3.63	531
MINNESOTA-----	834	10,000	3.84	384		4,819	9,796	4.63	454	115,211	14,196	3.61	512
MISSISSIPPI-----	666	10,243	3.59	368		1,856	9,955	4.35	434	12,871	12,672	3.44	436
MISSOURI-----	22	9,945	3.90	388		2,362	9,912	4.55	451	28,371	13,563	3.52	478
MONTANA-----	97	15,724	3.54	556		91	10,966	4.64	509	1,827	15,168	3.57	541
NEBRASKA-----	244	10,055	3.91	393		908	9,642	4.74	457	19,776	13,301	3.66	487
NEVADA-----	(1/)	(1/)	(1/)	(1/)		(1/)	(1/)	(1/)	(1/)	1,396	15,999	3.34	534
NEW HAMPSHIRE-----	731	12,616	3.87	488		362	9,879	4.42	437	8,594	15,028	3.63	546
NEW JERSEY-----	23	12,258	3.72	456		1,300	9,877	4.77	471	17,149	14,603	3.64	532
NEW MEXICO-----	26	13,626	3.66	495		1,932	11,798	4.37	515	5,667	16,189	3.38	547
NEW YORK-----	4,290	12,207	3.87	473		4,506	10,517	4.59	483	166,078	15,251	3.54	540
NORTH CAROLINA-----	239	12,446	3.75	467		1,961	10,078	4.57	460	48,172	14,761	3.52	520
NORTH DAKOTA-----	1	16,080	3.51	565		84	11,032	4.63	512	5,134	13,054	3.57	466
OHIO-----	1,257	11,860	3.84	456		4,660	10,581	4.67	495	60,365	14,755	3.65	538
OKLAHOMA-----	392	11,675	3.89	453		614	10,584	4.44	470	19,066	13,965	3.48	486
OREGON-----	239	12,250	3.83	470		2,099	10,703	4.64	497	18,162	15,195	3.68	559
PENNSYLVANIA-----	2,005	11,333	3.97	450		8,498	10,155	4.60	467	118,566	14,806	3.70	547
RHODE ISLAND-----	182	11,728	3.83	449		101	8,300	4.51	374	1,034	14,637	3.63	532
SOUTH CAROLINA-----	10	9,594	3.89	374		3,306	10,451	4.37	457	17,404	13,825	3.54	490
SOUTH DAKOTA-----	128	10,745	3.88	416		80	9,633	4.52	435	6,608	14,090	3.57	504
TENNESSEE-----	224	10,190	3.89	396		1,632	9,727	4.53	440	24,708	13,553	3.58	486
TEXAS-----	55	11,943	3.38	404		434	9,810	4.37	428	23,380	14,573	3.37	491
UTAH-----	29	10,757	3.84	412		128	9,865	4.30	425	16,973	14,544	3.52	513
VERMONT-----	1,764	11,956	3.88	464		590	10,436	4.60	481	31,341	14,877	3.60	536
VIRGINIA-----	527	11,676	3.85	450		3,728	9,909	4.64	460	54,289	13,986	3.59	502
WASHINGTON-----	375	12,401	3.84	476		3,458	11,180	4.63	517	41,197	15,854	3.60	570
WEST VIRGINIA-----	133	11,098	3.74	414		490	8,795	4.63	407	9,491	13,790	3.58	494
WISCONSIN-----	724	11,095	3.81	423		9,622	10,268	4.67	480	128,004	14,799	3.69	546
WYOMING-----	(1/)	(1/)	(1/)	(1/)		14	13,536	4.62	625	182	14,518	3.44	499
UNITED STATES-----	22,427	11,683	3.86	451		97,844	10,316	4.58	473	1,592,817	14,737	3.60	530

1/ LACTATION RECORDS NOT AVAILABLE.

TABLE 2.--AVERAGE YIELDS BY STATE FOR CALVING YEAR 1971 FOR OFFICIAL COWS CODED AS JERSEY, BRCWN SWISS, AND MILKING SHORTHORN ON A 305-DAY, 2X, ME BASIS

STATE	RECORDS	JERSEY			BROWN SWISS			MILKING SHORTHORN					
		NO.	MILK LB	FAT %	FAT LB	RECORDS	MILK LB	FAT %	FAT LB	RECORDS	MILK LB	FAT %	
ALABAMA	3,912	8,802	4.77	421		810	11,815	3.95	467	(1/)	(1/)	(1/)	
ALASKA	(1/)	(1/)	(1/)	(1/)		(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	
ARIZONA	670	10,636	4.57	486		495	16,023	4.03	645	33	10,605	3.51	372
ARKANSAS	595	8,476	4.76	403		30	11,464	3.86	443	84	11,892	3.49	415
CALIFORNIA	11,566	10,508	4.99	524		550	14,988	3.98	596	176	11,841	3.77	448
COLORADO	539	9,482	4.92	466		456	13,749	4.06	558	29	11,780	3.64	424
CONNECTICUT	436	9,932	4.96	492		315	14,006	3.99	559	5	10,736	3.80	406
DELAWARE	78	7,690	4.81	369		25	11,154	3.68	413	(1/)	(1/)	(1/)	(1/)
FLORIDA	1,822	8,867	4.57	405		641	12,991	3.67	477	2	10,950	3.76	412
GEORGIA	2,319	8,862	5.05	448		640	12,955	3.84	497	9	11,589	3.65	424
HAWAII	9	8,956	3.87	347		7	14,651	3.51	514	2	13,145	3.23	425
IDAHO	1,647	9,235	5.10	471		116	13,045	3.93	512	58	11,806	3.71	438
ILLINOIS	1,511	9,068	5.04	457		1,488	12,277	4.11	504	92	11,382	3.86	439
INDIANA	1,406	8,686	5.02	436		925	13,191	3.97	524	81	11,557	3.63	420
IOWA	2,466	8,572	5.06	434		2,815	12,280	4.00	491	448	10,043	3.70	372
KANSAS	823	9,134	4.97	454		630	12,560	4.00	502	16	9,874	3.65	360
KENTUCKY	2,255	9,114	4.86	443		445	11,923	3.82	455	(1/)	(1/)	(1/)	(1/)
LOUISIANA	1,994	8,833	4.58	405		138	11,470	3.73	428	1	9,630	3.14	302
MAINE	1,549	10,253	4.94	507		56	12,003	4.05	486	71	9,246	3.82	353
MARYLAND	696	8,303	5.15	428		423	12,054	4.10	494	39	7,717	3.69	285
MASSACHUSETTS	1,233	9,441	5.13	485		136	12,763	3.92	501	47	9,993	3.86	386
MICHIGAN	2,275	8,975	5.18	465		444	12,168	4.01	488	35	11,694	3.55	416
MINNESOTA	2,134	8,850	4.99	442		1,407	12,243	3.97	487	431	10,431	3.58	373
MISSISSIPPI	4,419	8,710	4.74	413		61	10,014	3.91	393	(1/)	(1/)	(1/)	(1/)
MISSOURI	2,202	8,655	4.93	427		566	11,912	3.89	464	162	10,601	3.63	385
MONTANA	57	6,531	5.27	344		39	14,467	4.08	590	(1/)	(1/)	(1/)	(1/)
NEBRASKA	209	8,665	5.00	433		657	11,646	4.08	476	128	9,462	3.73	353
NEVADA	727	11,161	4.98	556		14	16,658	3.69	614	3	18,640	3.91	729
NEW HAMPSHIRE	1,337	10,101	4.94	499		85	12,991	3.79	493	1	12,070	3.16	381
NEW JERSEY	558	10,614	4.75	504		322	12,561	4.06	511	(1/)	(1/)	(1/)	(1/)
NEW MEXICO	279	8,771	4.62	405		2	14,570	4.21	614	3	11,100	3.86	429
NEW YORK	4,175	9,382	4.98	468		1,575	13,044	3.96	517	42	9,669	3.62	350
NORTH CAROLINA	3,090	9,008	4.87	439		414	12,444	3.88	482	3	15,097	3.76	568
NORTH DAKOTA	10	8,769	4.69	406		196	11,757	4.08	479	44	11,404	3.52	402
OHIO	5,691	9,143	5.09	465		1,641	13,054	4.17	545	138	9,910	3.77	373
OKLAHOMA	797	8,795	4.92	433		247	13,504	3.92	529	205	10,660	3.49	372
OREGON	5,000	10,250	5.05	518		728	14,115	4.09	577	85	11,263	3.99	450
PENNSYLVANIA	3,463	9,470	4.95	469		1,075	13,048	4.07	531	66	9,710	3.62	351
RHODE ISLAND	47	10,090	5.40	546		1	15,480	3.64	563	(1/)	(1/)	(1/)	(1/)
SOUTH CAROLINA	4,095	9,864	4.92	485		472	12,285	3.79	466	3	11,487	3.55	406
SOUTH DAKOTA	148	8,101	5.08	411		377	12,020	3.92	471	31	9,152	3.63	332
TENNESSEE	4,698	9,145	4.88	447		709	12,010	3.96	475	2	11,945	3.62	432
TEXAS	4,382	9,139	4.65	425		610	14,366	3.71	533	3	9,803	4.44	436
UTAH	1,468	9,006	4.91	442		70	14,048	3.89	546	7	12,286	3.69	454
VERMONT	5,543	9,671	5.03	486		366	14,195	3.98	565	23	11,017	3.66	403
VIRGINIA	1,363	9,474	5.05	479		487	11,663	4.05	472	4	10,840	3.91	423
WASHINGTON	3,739	10,500	5.00	525		510	14,182	3.99	566	85	10,787	3.65	396
WEST VIRGINIA	421	9,514	5.00	476		15	8,289	4.10	339	(1/)	(1/)	(1/)	(1/)
WISCONSIN	2,473	9,128	5.04	460		2,259	12,707	4.01	510	320	10,244	3.65	374
WYOMING	(1/)	(1/)	(1/)	(1/)		(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)	(1/)
UNITED STATES	102,326	9,441	4.94	467		26,490	12,791	3.99	510	3,017	10,517	3.67	386

1/ LACTATION RECORDS NOT AVAILABLE.

